BEFORE THE

FEDERAL COMMUNICATIONS COMMISSION

WASHINGTON, D.C.

In the Matter of	)	
	)	
Rulemaking to Amend Parts 1, 21, and 25 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band, to Reallocate the 29.5-30.0 GHz Frequency Band, to Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services	)	CC Docket No. 92-297
and	)	
Suite 12 Group Petition for Pioneer's Preference	)	PP-22

TO: The Commission

COMMENTS OF GE AMERICAN COMMUNICATIONS, INC.

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SUMMARY

GE Americom strongly supports the Commission's proposal to allocate Ka-band spectrum for geostationary fixed-satellite services ("GSO/FSS"). The C- and Ku-bands are both becoming saturated, and additional spectrum is needed to meet demand from existing and future customers.

The Commission has correctly recognized that 1000 MHz of spectrum is the minimum needed to permit advanced broadband GSO/FSS services in the Ka-band. However, unless modified, the Commission's spectrum segmentation proposal will not provide GSO/FSS operators with that amount, making the Ka-band less attractive for GSO/FSS providers and customers.

Several changes are necessary. First, the Commission must reconsider its decision to allocate spectrum to GSO/FSS and Mobile Satellite Service ("MSS") feeder links on a co-primary basis. This allocation is co-primary in name only, because MSS providers have a substantial headstart in the use of Ka-band frequencies. GE Americom is concerned about the potential for significant interference between GSO/FSS applications and MSS or other nongeostationary satellite systems when the nongeostationary satellite passes between the GSO/FSS satellite and an earth station. If the Commission proceeds with its proposal to coordinate in this spectrum on a first come, first served basis, MSS providers will have no incentive to work out ways to eliminate such interference because they are likely to be operational first.

The Commission should address this problem by requiring all MSS feeder link operations to share with LMDS, rather than allocating spectrum to MSS

and GSO/FSS on a co-primary basis. Moving all MSS feeder links to spectrum within the band allocated for LMDS, pursuant to the sharing agreement that has already been reached, will satisfy the requirements of both these services. Furthermore, it will permit the allocation of additional spectrum to GSO/FSS on a sole primary basis, ensuring that the Commission's objective of providing 1000 MHz of usable spectrum for GSO/FSS is met.

If the Commission does not re-locate the MSS feeder link allocation, it must at least take steps to facilitate sharing. Specifically, it must eliminate the first come, first served rule and require MSS providers to coordinate with subsequently initiated GSO/FSS operations. Only then will both types of providers have incentives to develop interference solutions.

Sharing between GSO/FSS and NGSO/FSS raises the same interference concerns discussed above. A similar solution is needed: the Commission must give GSO/FSS co-primary status in the spectrum to be shared with NGSO/FSS in order to create incentives to resolve interference problems.

The Commission has recognized that sharing is generally not possible between GSO/FSS and Local Multipoint Distribution Service ("LMDS"). As a result, the Commission must strictly enforce its proposed deadline for CellularVision's LMDS operation to vacate the portion of spectrum that is to be allocated for GSO/FSS. Finally, the Commission will need to act if limited sharing between LMDS and GSO/FSS gateway stations is to be feasible. Gateway stations represent a significant investment, and no GSO/FSS provider is likely to build such

a station if it knows that it will have to terminate operations in the event an LMDS provider later adds a facility within the interference zone of the gateway station. Instead, the Commission should adopt rules providing that a gateway station that has been coordinated with existing LMDS operations is entitled to continue operating notwithstanding later additions of LMDS facilities.

If suitable sharing arrangements as contemplated by the Commission's plan cannot be worked out, however, the Commission will need to re-evaluate its fundamental proposal. In that event, GE Americom continues to believe that the most rational step would be to require LMDS to move to the 40 GHz band.

Apart from these concerns about the Commission's proposed spectrum plan, GE Americom generally supports the Commission's recommendations. Specifically, we agree that existing Part 25 rules -- including 2 degree spacing, strict financial qualifications requirements, and authorization of hybrid satellites -- should be applied to Ka-band GSO/FSS operations. We believe that it is unlikely that auctions of Ka-band spectrum for GSO/FSS will be necessary, given the number of usable orbital slots. However, if the Commission does engage in spectrum auctions, it should adopt its proposed rules to deter speculation and spectrum warehousing.

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TO: The Commission

COMMENTS OF GE AMERICAN COMMUNICATIONS, INC.

GE American Communications, Inc. ("GE Americom") hereby comments on the Third Notice of Proposed Rulemaking and Supplemental Tentative Decision in the above-captioned matter, FCC 95-287 (released July 28, 1995) ("*Notice*").

INTRODUCTION

GE Americom strongly supports the Commission's efforts to allocate spectrum in the 28 GHz Ka-band for geostationary fixed satellite services

("GSO/FSS"). Current FSS spectrum is nearing capacity. Existing spacecraft are largely filled, and the Commission has recently opened a processing round for new satellites that could exhaust orbital supply, particularly with respect to positions capable of 50-state service. Satellite operators therefore may not be able to meet future customer service requirements.

As a result, this docket is vitally important. The Commission has recognized that the Ka-band is the logical expansion band for new satellite services. Satellite operations in the Ka-band will have substantial public interest benefits:

> Permitting satellites to operate in the 28 GHz band will contribute to the national and global information infrastructure by modernizing existing communications infrastructures of local telephone service, providing enhanced wide-area mobile services and access to advanced, digital, broadband communications and video services. *Notice* at 8.

GE Americom realizes that the Commission has undertaken substantial efforts to attempt to develop a frequency allocation plan that will also accommodate local multipoint distribution services ("LMDS"), mobile satellite services ("MSS") and nongeostationary fixed satellite services ("NGSO/FSS") in the Ka-band. However, we have serious questions about whether that attempt can succeed in providing each service the amount of spectrum it will require. As discussed in further detail below, GE Americom has doubts about the technical viability of sharing between providers of different types of Ka-band services.

Unless these concerns are addressed, GE Americom fears that, instead of accommodating all users, the Commission's plan could end up depriving any Ka-

band provider of the spectrum needed to provide commercially feasible service. In this regard, GE Americom continues to believe that the Commission should require LMDS providers to move to the 40 GHz band

If the Commission nevertheless continues to try to divide the Ka-band spectrum among all four categories of users identified above, it will have to face some hard realities. The Commission has already recognized that 1000 MHz is the minimum amount of spectrum that will be needed for GSO/FSS licensees. *Notice* at 21-22. The frequency plan as proposed, however, allocates only 750 MHz of spectrum to GSO/FSS on a sole primary basis. Although there are additional GSO/FSS spectrum allocations, they are allocated on a co-primary or secondary basis without effective sharing rules, which could preclude meaningful GSO/FSS use of this spectrum.

GE Americom has identified a number of potential problems that are raised by spectrum sharing between geostationary satellite services on the one hand and nongeostationary satellite services or LMDS on the other hand. We believe that there are possible solutions to some of these problems, but Commission action will be necessary to ensure that GSO/FSS providers have adequate usable spectrum.

In particular, the Commission should modify its proposal to allocate the 29.25-29.5 GHz band to GSO/FSS and MSS feeder links on a co-primary basis. Instead, GSO/FSS operators should have a sole primary allocation in this band, and MSS feeder links should be given a co-primary allocation within the 27.5-28.35

GHz band allocated to LMDS, pursuant to the sharing arrangement that has already been worked out between those parties. This step would implement a spectrum segmentation plan that meets the needs of LMDS and MSS providers while addressing the minimum spectrum requirement of GSO/FSS providers, without the need for any further Commission action.

If the Commission does not change the allocation for MSS feeder links, it must at least modify its proposal to facilitate resolution of sharing problems. In particular, GSO/FSS providers will not be able to make use of the spectrum allocated to them on a co-primary basis with MSS feeder links unless the Commission eliminates its proposed first come. first served rule, because MSS users will have a headstart over GSO/FSS use of the Ka-band frequencies. Similarly, the Commission must adopt rules to provide some protection to GSO/FSS users in the sub-bands where they are secondary to NGSO/FSS and LMDS providers or those allocations will be useless as well.

Apart from these concerns regarding the allocation plan, GE Americom generally supports the Commission's proposals regarding regulation of GSO/FSS in the Ka-band. We agree that the existing Part 25 rules should be applied to Ka-band services. Because the usable arc can easily support 26 full-CONUS orbital slots, we do not believe that auctioning of Ka-band spectrum for GSO/FSS should be required. However, if the Commission nevertheless engages in spectrum auctions, it should adopt its proposed regulations to deter speculation and spectrum warehousing.

I. A MINIMUM OF 1000 MHZ OF UNENCUMBERED SPECTRUM IS NEEDED FOR KA-BAND GSO/FSS

The Commission correctly determined that "1000 MHz of spectrum is needed to support multiple Ka-band GSO/FSS systems." *Notice* at 22. Increased demand for satellite service has resulted in heavy use of C- and Ku-band systems. Current Commission rules already provide for full frequency reuse in these bands. Existing hybrid satellites today can use up to 2000 MHz by employing frequency reuse due to polarization diversity.

Despite this highly efficient use of frequency, the GSO/FSS services market is reaching saturation. Demand for domestic C-band capacity now exceeds the available supply, and Ku-band capacity is also in high demand.

Furthermore, as the Commission has noted, the broadband applications proposed for the Ka-band require more bandwidth than current data operations. *Notice* at 21-22. As a result, the 1000 MHz of spectrum used by typical C- and Ku-band satellites today is the minimum that must be considered necessary for Ka-band GSO/FSS service. However, the 750 MHz of unencumbered Ka-band spectrum that the Commission has proposed to allocate to GSO/FSS is 25% less than the capacity of current generation C- and Ku-band spacecraft, making the band less attractive for broadband services.

As the FCC has noted, NASA has made a significant investment -- close to a billion dollars -- in research to demonstrate the feasibility of providing fixed-satellite services in the Ka-band. *Notice* at 6. The value of that investment

will be jeopardized if the Commission fails to allocate sufficient spectrum for the development of viable GSO/FSS services in this band.

Accordingly, GE Americom strongly urges the Commission to take steps to ensure that 1000 MHz of usable spectrum is available to GSO/FSS providers in the Ka-band. Anything less could block the establishment of these services before they even begin.

II. AS PROPOSED, THE COMMISSION'S FREQUENCY PLAN WILL NOT MEET THE MINIMUM SPECTRUM REQUIREMENTS OF GSO/FSS USERS

The Commission's frequency plan, however, does not meet its stated intention of providing 1000 MHz of spectrum that can be used by GSO/FSS providers.

A. Significant Obstacles Exist to Efficient Operations Even In the Spectrum Allocated for Sole Primary GSO/FSS Use

The Commission proposes to allocate only 750 MHz of spectrum, from 28.35-28.6 GHz and from 29.5-30.0 GHz for sole primary use by GSO/FSS operations. Even in these sub-bands, however, there are obstacles to efficient use by GSO/FSS providers.

As an initial matter, the noncontinuity of these sub-bands creates impediments to efficient use of this spectrum. GE Americom believes that these problems can be addressed through the use of onboard processors. Specifically, the receiver's antenna and transmitter can be designed either to cover a wider bandwidth encompassing both the sub-bands or to cover each individual sub-band.

However, more complicated redundancy systems would also be required, involving either multiple back-up receivers or a very wideband back-up receiver as well. Either way, the costs of designing and constructing the GSO/FSS spacecraft will be increased.

In addition, the Commission has proposed to allow CellularVision to continue to occupy a portion of the spectrum allocated for GSO/FSS use. Specifically, the Commission has suggested that CellularVision be permitted to maintain its operations in the 28.35-28.5 GHz sub-band until 36 months after the adoption of the First Report & Order in this proceeding or until the first GSO satellite is successfully launched, whichever happens later. *Notice* at 29. If CellularVision does not strictly comply with the requirement that it terminate service in this sub-band prior to initiation of GSO/FSS use, harmful interference will result.

GE Americom is particularly concerned about this issue because CellularVision has proposed to expand its system by adding 33 new cells, using the same 1000 MHz equipment installed at its initial cell in Brighton Beach. GE Americom opposed CellularVision's expansion applications because we believe it would be premature to consider them while this rulemaking proceeding is pending.[1] GE Americom argued that at a minimum, the Commission must condition any expansion authority granted to CellularVision on the outcome of this rulemaking to

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[1] *See* Letter of Peter A. Rohrbach to William F. Caton regarding applications filed by CellularVision of New York, L.P., File Nos. 1-CF-95 through 33-CF-95 (Sept. 1, 1995).

put CellularVision and its customers on notice that future Commission action could affect CellularVision's service.

The Commission can address GE Americom's concern on this issue by strictly adhering to its proposed deadline for CellularVision to vacate the spectrum allocated for GSO/FSS use. However, the risk of interference if CellularVision is not forced to vacate the sub-band increases the uncertainty facing potential Ka-band GSO/FSS providers. The Commission must make crystal clear that operations by CellularVision in the New York City area will not be permitted to interfere with the development of GSO/FSS operations providing coverage to the entire country.

B. The Commission Cannot Assume that Sharing Between Geostationary and Nongeostationary Satellite Providers Will Be Possible

The remaining spectrum that the Commission proposes to allocate for GSO/FSS use is shared, either on a co-primary or secondary basis. The Commission proposes to permit GSO/FSS providers to operate in the 29.25-29.5 GHz band on a co-primary basis with MSS feeder links. In addition, the Commission's plan provides for the allocation of the 28.6-29.1 GHz band to NGSO/FSS on a primary basis and to GSO/FSS on a secondary basis. However, GE Americom has serious questions about the feasibility of any NGSO satellites sharing with GSO systems.

Specifically, without sharing rules harmful interference is likely to result when a nongeostationary satellite passes between a GSO/FSS satellite and an earth station. Whether the interference affects the geostationary or the nongeostationary operations will depend on whether the earth station is

transmitting or receiving and whether it is communicating with the geostationary or nongeostationary satellite. For example, signals uplinked to a geosynchronous satellite will receive interference when a mobile satellite transits between that geosynchronous satellite and the mobile satellite earth station. Likewise, when the mobile satellite transits between a geostationary satellite and its earth station, signals uplinked to the mobile satellite will be subject to interference. The same is true with respect to signals downlinked from satellites, whenever typically small antenna earth stations lie within the overlapping footprints of these two satellites.

The Commission's allocation plan as proposed will not facilitate resolution of these problems. Solutions are likely only if the Commission gives both parties the incentive to work creatively to develop viable sharing arrangements. This will not be the case under the Commission's proposed rules.

Specifically, although GSO/FSS and MSS are designated as co-primary in the 29.25-29.5 GHz sub-band, they are co-primary in name only. In effect, GSO/FSS would be secondary to MSS because the first come first served rule proposed in the *Notice* would govern interference protection between the two services. *Notice* at 25. MSS licenses have already been issued, so MSS providers will have a substantial head start in initiating use of this sub-band over GSO/FSS providers. The Commission has not yet even adopted rules regarding GSO/FSS service in this band, and applicants will need a substantial lead time after rules are adopted to construct and launch their satellites. MSS providers, on the other hand, are poised to begin use of the spectrum as soon as it is authorized. If MSS

providers have complete *de facto* interference protection under the rules from subsequently initiated GSO/FSS operations, the MSS licensees will have absolutely no incentive to cooperate in resolving sharing problems. As a result, this sub-band will be useless to GSO/FSS providers.

The same analysis applies to the 28.6-29.1 GHz sub-band in which GSO/FSS is designated as secondary to NGSO/FSS. The secondary status of GSO/FSS providers means that NGSO/FSS operators will have no incentive to work out solutions to the sharing issues described above, and this sub-band too will be effectively foreclosed to GSO/FSS systems.

Thus, the Commission's reliance on spectrum shared with MSS and NGSO/FSS licensees to fulfill the needs of GSO/FSS providers is misplaced. Unless the Commission modifies its proposal, GSO/FSS providers will be unable to make effective use of either of these sub-bands.

C. Sharing Between FSS Systems and LMDS Providers Will Be Possible at Best in Only Limited Circumstances

Finally, the Commission's assumption that FSS can operate on a secondary basis to LMDS in the 27.5-28.35 GHz sub-band is not supported. The Commission's discussion of this allocation proposal recognizes that FSS and LMDS service uplinks are not technically able to share spectrum at this time due to their ubiquitous nature. *Notice* at 18. However, the Commission contemplates that FSS users would be able to provide limited "gateway" type services in this sub-band. *Id.* at 19. Gateway stations would ideally be located in areas that are shielded from

interference into major metropolitan areas, just as many major C-band earth stations are today.

As an initial matter, GE Americom is concerned that, depending on the number and location of LMDS stations deployed, it may not be possible to establish an FSS gateway station at a site where interference to LMDS operations will not result. However, assuming that such a site could be found, an FSS operator would have to have some assurances that it would have protection for that station. A gateway station represents a substantial investment. No FSS operator would take the risk of installing such a station with the knowledge that it might have to terminate service in the event that an LMDS station was later added within the potential interference zone of the gateway station.

Thus, the Commission's frequency plan -- at least as written -- will not provide the 1000 MHz of usable spectrum needed for efficient GSO/FSS operations in the Ka-band.

III. THE COMMISSION MUST MODIFY ITS PROPOSED RULES TO MEET THE SPECTRUM REQUIREMENTS OF GSO/FSS PROVIDERS

Specific modifications to the Commission's policies are necessary to meet the spectrum needs of GSO/FSS providers GE Americom describes the needed changes below. However, we note that even if the Commission takes these steps, it remains to be seen whether viable sharing arrangements can be developed. As a result, the Commission may need to more fundamentally re-evaluate its frequency proposal.

A. The Commission Must Protect the Rights of GSO/FSS Providers in the Bands Where They Have a Sole, Primary Allocation

As an initial matter, it is critical that the spectrum the Commission proposes to allocate to GSO/FSS on a sole primary basis be protected. As noted above, the Commission proposes to permit CellularVision to continue its operations in a portion of this spectrum (28.35-28.5 GHz) for a period of time after rules are adopted in this proceeding.

GE Americom does not object to this grandfathering proposal *per se*, but we emphasize that the deadline for CellularVision to vacate the band must be strictly adhered to. Again, our concern is heightened by the fact that CellularVision has proposed to expand by adding 33 new cells, using the same 1000 MHz equipment it is operating now. CellularVision has been put on notice that its rights in the sub-band allocated to GSO/FSS will terminate and it must plan accordingly to transition out of that spectrum. It should not be heard to complain later that the burdens of accommodating its subscribers in a more restricted frequency band justify any extension of its operations. The Commission must make clear to CellularVision that the deadline for termination of its operations in the 28.35-28.5 GHz sub-band will stand, regardless of the number of CellularVision customers that may be affected by that change.

B. The Commission Must Modify its Spectrum Segmentation Plan To Address Interference Concerns Raised by Sharing Between Geostationary and Nongeostationary Satellite Providers

As discussed above, there are inherent problems related to the sharing of spectrum by geostationary and nongeostationary satellite systems. These issues were not adequately explored in the NRC's consultations regarding sharing issues, which focused primarily on the potential for sharing between LMDS and satellite services. Unless the Commission addresses these concerns, the minimum spectrum requirements of GSO/FSS providers will not be met.

1. The Commission should require all MSS feeder links to operate in spectrum shared with LMDS.

The optimum solution to the problem of sharing spectrum between GSO/FSS systems and MSS feeder links is to avoid it altogether by implementing an alternative segmentation plan. Specifically, the Commission should consider requiring that all MSS feeder links operate in spectrum shared with LMDS.

The Commission has already provided for such sharing in the 29.1-29.25 GHz band, in which MSS and LMDS would have co-primary status. That proposal reflects the agreement reached during the NRC proceedings between Motorola, CellularVision, and Texas Instruments. *See Notice* at 23-24. Pursuant to that agreement, MSS licensees would be permitted to operate feeder link earth stations in up to eight designated metropolitan statistical areas ("MSAs"). These stations would be entitled to a protection zone within the MSA and up to 75 nautical miles from its boundary. In that zone, the LMDS operator would be

required to accept any interference caused by the feeder link station. LMDS subscriber terminals would not be permitted to operate in these frequencies.

GE Americom agrees with the Commission that this arrangement provides a reasonable basis for co-frequency sharing between MSS and LMDS. As a result, we urge the Commission to expand its proposal by requiring all MSS feeder links to operate in spectrum shared with LMDS. Specifically, the Commission should modify its segmentation proposal to eliminate the co-primary allocation for MSS feeder links in the 29.25-29.5 GHz band allocated to GSO/FSS. Instead, the Commission should allocate an equivalent amount of co-primary spectrum for MSS feeder links within the 27.5-28.35 GHz band designated for LMDS, subject to the same sharing restrictions described above.

This approach would clearly be in the public interest. It would maintain the Commission's allocation of primary spectrum for both LMDS and MSS feeder links. The Commission could allocate 200 MHz or even 400 MHz of spectrum for MSS feeder links while still maintaining a portion of spectrum for sole use by LMDS operations. However, unlike the Commission's current proposal, this modification would provide GSO/FSS operators with the full 1000 MHz of unencumbered spectrum that the Commission recognized is necessary to support broadband Ka-band services. As a result, the approach advances the Commission's objective of establishing a band segmentation plan that is "equitable, allows licensees to operate viable systems, promotes competition within the band, allows the public to receive service as soon as possible, and provides for future growth of

both satellite and terrestrial services." *Notice* at 18. It will allow all systems adequate spectrum to flourish and make full use of the Ka-band.

2. At a minimum, the Commission must modify its rules to facilitate sharing between geostationary and nongeostationary systems.

If the Commission does not eliminate the problem by re-allocating the MSS feeder link spectrum as discussed above, it will have to take further steps to facilitate sharing between geostationary and nongeostationary systems and adopt equitable sharing requirements. Otherwise, GSO/FSS systems will not be able to effectively use the spectrum allocations in which they are co-primary with MSS feeder links or secondary to NGSO/FSS systems

As GE Americom has observed, harmful interference is likely to result when an MSS or NGSO/FSS satellite passes between a GSO/FSS satellite and an earth station. There may be ways to solve at least some of these potential interference problems, but it will require steps to be taken by both types of licensees. For example, one way to address uplink interference involving GSO/FSS and MSS operations would be to require the MSS licensee to use diverse uplink sites during the time period of GSO arc transit. This method was shown to be effective by Hughes at mid- to low latitudes for avoidance of up- and downlink interference from the MSS earth station transmission into GSO/FSS satellite receivers or GSO/FSS downlinks into MSS earth station receivers.[2] In addition,

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[2] *See* Ex Parte Presentation of Hughes Communications Galaxy, Inc., CC Docket No. 92-297, RM-7872. RM-7722, IC Docket No. 94-31 (June 7, 1995).

Hughes showed that at mid- to high latitudes, switching MSS earth station up- and downlinks between visible MSS satellites will also reduce interference potential between systems. *Id.* A similar solution might work for the spectrum shared between GSO/FSS and NGSO/FSS as the large number of satellites proposed by the NGSO/FSS proponent will result in more than one satellite always being visible from any location.

Reverse band sharing might be possible with respect to the MSS spectrum because of the limited number of MSS earth stations if necessary geographical separation requirements are met. But reverse band sharing probably would not work in the NGSO/FSS spectrum. Given the ubiquitous nature of the user terminals planned for both NGSO/FSS and GSO/FSS, interference would be likely from the uplink earth stations of both services into the downlink earth stations of the other.

These issues clearly need to be explored fully among potential providers of the various types of satellite services. At a minimum, however, the Commission must make sure that all parties involved have the necessary incentives to make every effort to work out interference issues. In particular, the Commission must make GSO/FSS truly co-primary in the 29.25-29.5 GHz sub-band by requiring MSS licensees to coordinate with subsequently initiated GSO/FSS services in that sub-band. As we have indicated, application of a first come, first served rule will preclude GSO/FSS licensees from making use of this spectrum.

In addition, the Commission must provide some incentive for NGSO/FSS providers to work out sharing arrangements in the 28.6-29.1 GHz sub-band in which GSO/FSS providers have a secondary allocation. GSO/FSS operators must be given either co-primary status, or some other form of interference protection, to ensure that they have some standing to negotiate bilateral interference solutions with NGSO/FSS providers.

Once the technical parameters of a sharing solution have been worked out, the Commission will need to take further action to reflect those arrangements in its operational rules for Ka-band systems. However, if reasonable sharing agreements cannot be reached, the Commission will have to reconsider the fundamental assumptions underlying its entire proposed allocation plan.

C. The Commission Must Provide Minimum Protections for FSS Gateways to Make Sharing with LMDS Feasible

GE Americom has also described above the problems created by the Commission's proposal that FSS gateway stations share spectrum on a secondary basis with LMDS. Obviously an FSS provider will not take the risk that after an expensive gateway station is installed, it would have to be shut down if a nearby LMDS station was added later. Furthermore, it is difficult to predict given the novelty of LMDS how extensively LMDS stations will be deployed. However, the more widely dispersed LMDS stations are, the harder it will be to even locate a site where an FSS gateway station could be installed without causing interference problems to existing, much less future, LMDS installations.

At a minimum, however, if there is to be any possibility of sharing between FSS gateway stations and LMDS, the Commission must revise its policies to accord basic protections to the FSS station. Specifically, the Commission must provide that if an FSS provider selects and coordinates a gateway site with existing LMDS operations, it will not be required to terminate its gateway operations if an LMDS licensee subsequently adds a station within the gateway's potential interference zone.

D. If the Commission's Spectrum Sharing Plans Prove to Be Unworkable, the Commission Should Reconsider Moving LMDS to the 40 GHz Band

As we have demonstrated, the Commission's proposal makes a number of assumptions about the feasibility of spectrum sharing in the Ka-band that may prove to be incomplete or incorrect. It is clearly too soon to conclude that sharing will not be possible, because issues related to sharing between geostationary and nongeostationary satellite systems have not been adequately explored. However, the Commission must be prepared to fundamentally reconsider its allocation plan if it concludes that sharing is unworkable.

If that happens, GE Americom continues to believe that the most reasonable course of action would be to move LMDS into the 40 GHz band. We have described the suitability of this band for LMDS in further detail in our

comments in the above 40 GHz rulemaking proceeding, and we incorporate those comments by reference herein.[3]

We recognize that such a move would entail some added expense and delay. However, we do not believe that these costs would be prohibitive -- particularly in comparison to the tremendous investment that has been made by NASA in development of GSO/FSS service in the Ka-band and the investments that C- and Ku-band satellite providers have made in establishing their systems and adjusting their operations to changes in Commission regulation. The record indicates that the operational costs for LMDS at 40 GHz are not inconsistent with what would be expected for any new service pioneering a new spectrum band. Furthermore, GE Americom would expect costs for LMDS equipment to decline substantially as the service develops and higher volume production can occur.

Moving LMDS to the 40 GHz band would permit the Commission to allocate the amount of spectrum needed for GSO/FSS on a sole primary basis. As a result, this would permit robust GSO/FSS operations in the Ka-band even if sharing with MSS and NGSO/FSS systems proves impractical.

At a minimum, however, the Commission should put LMDS providers on notice that a move to the 40 GHz band may be required in the future. The Commission can then continue to explore the possibility of spectrum sharing in the Ka-band. If sharing proves to be possible, then LMDS systems could continue their

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[3] *See* Comments of GE American Communications, Inc. at 5-9 in ET Docket No. 94-124, RM-8308 (filed Jan. 31, 1995).